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December 17, 2004  
BW040114

United States Nuclear Regulatory Commission  
ATTN: Document Control Desk  
11555 Rockville Pike  
Rockville, Maryland 20852

Braidwood Station, Unit 1  
Facility Operating License No. NPF-72  
NRC Docket No. STN 50-456

Subject: Braidwood Station, Unit 1 Sixty-Day Response to the Reporting Requirements of NRC Order EA-03-009, "Issuance of First Revised Order Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads"

Reference: 1) Letter from U. S. NRC, "Issuance of First Revised Order Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads," dated February 20, 2004.

2) Letter from K. R. Jury to U. S. NRC, "Answer to First Revised NRC Order (EA-03-009) to Modify Licenses Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads," dated March 9, 2004.

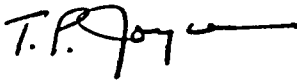
The purpose of this letter is to provide the Braidwood Station, Unit 1 sixty-day response to the reporting requirements listed in Section IV, paragraph D of Reference (1). Braidwood Station, as part of the Exelon Generation Company, LLC, consented to Order EA-03-009 (Order) in Reference (2). The results of the visual inspections required by Section IV, paragraph D of the Order are provided in the attachment to this letter. These inspections were performed during the recent Braidwood A1R11 outage (Fall 2004), which concluded on October 24, 2004.

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Please direct any questions you may have regarding this submittal to Mr. Dale Ambler, Regulatory Assurance Manager, at (815) 417-2800.

I declare under penalty of perjury that the foregoing is true and accurate.

Sincerely,

A handwritten signature in black ink, appearing to read "T. P. Joyce", followed by a horizontal flourish.

T. P. Joyce  
Site Vice President  
Braidwood Station

Attachment: Results of the A1R11 (Fall 2004) Visual Inspections of the Braidwood Station Unit 1 Reactor Vessel Head, (three pages)

cc: Regional Administrator – NRC Region III  
NRC Senior Resident Inspector – Braidwood Station

## Attachment

### Results of the A1R11 (Fall 2004) Visual Inspections of the Braidwood Station Unit 1 Reactor Vessel Head

The examination performed on the Braidwood Unit 1 reactor pressure vessel (RPV) head during the Fall 2004 refueling outage is contained in the first revised NRC Order EA-03-009 (Order), Section IV, paragraph D and is summarized below.

***During each refueling outage, visual inspections shall be performed to identify potential boric acid leaks from pressure-retaining components above the RPV head. For any plant with boron deposits on the surface of the RPV head or related insulation, discovered either during the inspections required by this Order or otherwise and regardless of the source of the deposit, before returning the plant to operation the Licensee shall perform inspections of the affected RPV head surface and penetrations appropriate to the conditions found to verify the integrity of the affected area and penetrations.***

During the Braidwood Station, Unit 1, Fall 2004 refueling outage (A1R11) a walk down was performed with the unit in Mode 3, shortly after reactor shutdown. The walk down was performed in accordance with the requirements of the Order and the Braidwood Station Boric Acid Corrosion Control (BACC) program. During this walk down, boric acid staining was identified at two control rod drive mechanism (CRDM) nozzle locations below the lower drive housing and above the lower canopy seal on the CRDM threaded connection. A second walk down of the reactor vessel head was performed in an attempt to identify the specific CRDM's affected. During this second walk down, CRDM's #14, 61, 21, 49, 22, 35, and 43 were identified as having indications of residual boric acid from previous staining (see discussion below). The staining affected a very small area on the stainless steel nozzles, which are not susceptible to boric acid corrosion. No boric acid was found on the mirror insulation below the nozzles. Consequently, it was concluded that there was no boric acid deposited below the mirror insulation that could impact the bare reactor vessel head. No new physical deposits were noted.

After review of supporting documentation in the Corrective Action Program and in Braidwood's responses to previous NRC Bulletins and orders, the staining/deposits were determined to be a repeat identification of the same staining that was found during A1R10. Therefore, the condition as previously evaluated has not changed and continues to be acceptable.

A review of previous Issue Reports (AR# 00154512) identified that a similar issue was identified during the Braidwood Station, Unit 1 Spring 2003 refueling outage (A1R10) on CRDM's near B-RVLIS #65 connection. The disposition of the boric acid indication identified leakage had occurred during reactor coolant system (RCS) venting that resulted in leakage from the B-RVLIS bolted connection in 1989 (NTS # 456-200-8914800).

Sampling (smears) of the staining was performed during A1R10. Isotopic analysis determined that the boric acid age coincided with the 1989 B-RVLIS leak during RCS venting.

## **Attachment**

### **Results of the A1R11 (Fall 2004) Visual Inspections of the Braidwood Station Unit 1 Reactor Vessel Head**

This leakage had been reported and evaluated as part of the response to NRC Bulletin 2002-01 in a letter dated April 1, 2002. The leakage and corrective action were discussed in the Braidwood Station, Unit 1 response to NRC Order EA-03-009, dated July 27, 2003.

A review of AR# 00154512 indicated the corrective actions included inspections, evaluation, and cleaning of CRDM components and stainless steel head insulation. A bare metal reactor vessel head inspection and cleaning was also performed during the same outage. In addition to the cleaning performed on the reactor vessel head, cleaning was also performed on the stainless steel head insulation, stainless steel CRDM housings and non-pressure retaining carbon steel structural components. The cleaning assured that boric acid would not deposit on the reactor vessel head, and only light boric acid staining remained in the lower and intermediate canopy areas of the CRDM housings. Inspections were performed after the cleaning and it was determined that the stainless steel and non-pressure retaining carbon steel components were acceptable as is.

The corrective actions also required documentation of any as-left conditions to facilitate future examinations. This has proved to be a difficult area in which to adequately identify all staining/deposit from the previous B-RVLIS leakage since the area around the nozzles is an extremely high radiation field. In addition, the interior of the reactor vessel head has limited access due to the outer integrated head package steel enclosure.

#### **EVALUATION OF BORIC ACID STAINING DURING A1R11**

The amount of boric acid found during this exam only involved staining of the nozzles and light oxidation of non-pressure retaining carbon steel components. No boric acid was found on the mirror insulation below the nozzles. Consequently, it was concluded that no boric acid was deposited below the mirror insulation. No new physical deposits were noted. Isotopic analyses were performed on 12 samples and similar to the analysis performed in A1R10, the analyses indicate the deposits are from the 1989 leak. After review of supporting documentation in the Corrective Action Program and in Braidwood's responses to previous NRC Bulletins and orders, the staining/deposits were determined to be a repeat identification of the same staining that was found during A1R10. Therefore, the condition as previously evaluated has not changed and continues to be acceptable.

#### **CORRECTIVE ACTIONS**

The inspections, cleaning, and evaluations previously performed in A1R10 are documented in the corrective action program under AR# 00154512. The BACC program was implemented on June 30, 2003, after the inspections, cleaning, and evaluations performed in A1R10. Therefore, the documentation required per BACC procedures for tracking and trending purposes was not required during the A1R10 outage. The documentation of the recent A1R11 outage (Fall 2004) is documented under action tracking item (ATI) 260099-02 and engineering evaluation (EC) 351981.

## **Attachment**

### **Results of the A1R11 (Fall 2004) Visual Inspections of the Braidwood Station Unit 1 Reactor Vessel Head**

#### **CONCLUSIONS**

After review of the existing documentation associated with the previous leakage that has now been identified several times, no new leakage has been identified and the previous evaluation (AR# 00154512) remains applicable.

The boric acid found is limited to staining and does not represent a physical amount of boric acid that could be quantified. The previous cleaning performed during A1R10 removed the boric acid deposits left from the B-RVLIS leak, however, staining in the form of streaks were left in several areas on the CRDM Nozzles. The current staining has no impact on the RCS pressure boundary since the materials of construction are stainless steel and are not susceptible to boric acid corrosion. The current boric acid staining does not impact any safety related components, the CRDM components, or other structural support steel in the area.